

Exam GHFVCU

Date: Wednesday, April 29, 2020

Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 60 points.

This exam consists of 8 questions, numbered 1 through 8.

The points for each question are indicated at the beginning of the question. Questions 3 and 7 pertain to the Case Study.

2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.
3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.
2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.
3. The answer should be confined to the question as set.
4. When you are asked to calculate, show all your work including any applicable formulas.
5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets because they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate Exam GHFVCU.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

Recognized by the Canadian Institute of Actuaries.

Tournez le cahier d'examen pour la version française.

CASE STUDY INSTRUCTIONS

The case study will be used as a basis for some examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular plan design to a company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

****BEGINNING OF EXAMINATION****

1. (6 points) XYZ is a health insurance plan that offers Medicare Advantage products and is currently evaluating its provider reimbursement approaches.

(a) (2 points) Describe how the Original Medicare program reimburses providers for the following types of services.

(i) (1 point) Inpatient hospital services.

(ii) (1 point) Outpatient hospital services.

You are given the following information about the Original Medicare program and XYZ's professional reimbursement rates for Procedure A.

Resource Based Relative Value Scale (RBRVS) Information for Procedure A		
	Relative Value Units	Area Adjustment
Work Value	1.20	1.50
Practice Expense Value	0.80	0.70
Malpractice Value	0.40	0.85

- Nationwide Conversion Factor of \$1,200
- In an average month, XYZ reimburses the provider community for 100 instances of Procedure A.
- XYZ's current provider payment rate for Procedure A is 110% of the Medicare rate, without area adjustment
- XYZ is proposing a revision of their payment rate for Procedure A to 100% of the Medicare rate, including area adjustment

(b) (4 points)

(i) (1 point) Describe what each value in the RBRVS table above is intended to measure.

(ii) (3 points) Calculate the annual financial impact of the proposed revision in reimbursement for Procedure A. Show your work.

2. (10 points) Two same age, same gender, non-smoker single individuals are looking to purchase health insurance on the individual exchange. They both have \$6,000 in healthcare costs per year in both 2014 and 2018.

- Member #1 has a salary of \$60,000 a year in 2014
- Member #2 has a salary of \$25,000 a year in 2014

Assume:

- Healthcare premium rates increase 75% in total from 2014 to 2018
- Salaries increase 8.2% in total from 2014 to 2018
- Cost share reductions are applied as an even percentage across claim cost
- Federal Poverty Level:
 - o 2014: \$11,670
 - o 2018: \$12,140

2014 Premiums:

	Bronze	Silver	Gold	Platinum
Cheapest Plan (per member per year)	\$2700	\$3000	\$3600	\$4080
2 nd Cheapest Plan (per member per year)	\$3000	\$3240	\$3960	\$4380
Deductible	\$4000	\$3500	\$3000	\$2500
Coinsurance (% insurer pays)	50%	60%	70%	80%
Out of Pocket Maximum	\$6350	\$6000	\$5500	\$5000

- (a) (7 points) Assume that each member chooses the plan which would result in the least cost to the member, in 2014:
- (i) Assess which plan each member would choose. Show your work.
 - (ii) Calculate the total health care expenditure for 2014 for each member as a percentage of their respective income. Show your work.
- (b) (3 points) Assume that Member #1 once again selects the plan which resulted in the least cost to the member in 2018:
- (i) Assess which plan Member #1 would choose. Show your work.
 - (ii) Calculate the total health care expenditure for 2018 for Member #1 as a percentage of income. Show your work.

Questions 3 and 7 pertain to the Case Study
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- 3.** (9 points) As of January 1, 2020, Live Twice has decided to terminate its retiree medical plan. All active employees will receive a lump-sum payout in lieu of any future retiree medical coverage. All current retirees will receive three more years of coverage (until December 31, 2022), at which point benefits will cease. You are a consulting actuary with Skyfall recently brought in to evaluate the impact of these changes.

Assumptions:

Discount rate: 4% per year for all three years
Trend rate: 5% (claims and premiums) per year for all three years
Mortality: None for all three years

- (a) (2 points) Describe the accounting treatment(s) applied in the recognition of the plan change on the APBO (Accumulated Post-retirement Benefit Obligation) and NPPBC (Net Periodic Post-retirement Benefit Cost).
- (i) (1 point) For active employees
- (ii) (1 point) For retired employees
- (b) (3 points) Calculate the APBO as of January 1, 2020 under the new plan. Show your work.

Live Twice Management is interested in ways to further decrease the APBO. They have suggested charging the retirees a percentage of the premium cost of coverage.

- (c) (1 point) Explain why unadjusted premiums should not be used to calculate the APBO in part (b).
- (d) (1 point) Describe the considerations that must be made if premiums are used in calculation of the APBO.
- (e) (2 points) Calculate the percentage of the blended premium rate that Live Twice should charge its retirees to reduce the APBO calculated in part (b) by 50%. Show your work.

4. (6 points) You are a consulting actuary hired by The Centers for Medicare and Medicaid Services (CMS) to certify the adequacy of 2020 Medicaid capitation rate for a state Medicaid program. The state is proposing a capitated model under the Financial Alignment Demonstration for the dual eligible population.

- (a) (2 points) Outline how the capitated model works.
- (b) (2 points) Explain the different base data adjustments that you should consider in assessing the adequacy of the capitation rates.

You are required to issue a Statement of Actuarial Opinion on the adequacy of the capitation rate level.

- (c) (1 point) Describe the different options you have in issuing a Statement of Actuarial Opinion.

Prior to 2020 the state did not include dual eligibles in the Medicaid managed care program. Due to the inclusion of the dual eligibles in 2020, the projection included many material assumptions on the new population.

- (d) (1 point) Justify the type of actuarial opinion you should provide.

5. (7 points) You work as an actuary at ABC Dental Insurance that sells Dental PPO Fully Insured and Self Insured plans in the Large Employer segment. ABC has recently experienced declining sales and higher claims trend than the rest of the industry.

- (a) (1 point) Describe the difference between Administrative Services Only (ASO) and Administrative Services Contract (ASC).

ABC's Vice President has proposed creating a new Dental HMO product that can increase sales while also decreasing claims trend.

- (b) (1 point) Describe two different types of capitation arrangements.
- (c) (3 points) Explain the advantages and disadvantages of a capitated arrangement versus a fee-for-service arrangement from the perspective of:
- (i) (1 point) ABC Dental Insurance
 - (ii) (1 point) The dentist
 - (iii) (1 point) The customer
- (d) (2 points) Describe three alternative arrangements, excluding benefit design changes, that can help ABC to reduce its claims risk.

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6. (8 points) Your consulting firm just took on a new client who offers a Cafeteria plan to its employees. The HR department has sent a list of the offered benefits on the Cafeteria plan.

- \$25,000 face value whole life policy
- \$50,000 face value term life policy
- \$5,000 of tax-free dependent care assistance, no employee or spouse work requirement
- Paid Time Off, beginning with a base of 24 days to the employee, with allowance to sell back up to 10 days
- Health Insurance Benefit plans
 - o Plan A - \$500 Deductible, Per Employee Per Year coverage value of \$3,600
 - o Plan B - \$5000 Deductible, Per Employee Per year coverage value of \$1,200
- Automatic enrollment in the 401k Plan with default employee contribution of 1% of salary, if not explicitly declined
- Health Savings Account (HSA) contribution up to \$2,000
- Adoption Assistance, up to \$13,170 contribution for anyone with salary less than \$250,000
- Health Flex Savings Accounts with electable funding up to \$10,000
- Employee must complete 4 years of employment before becoming eligible for the Cafeteria Plan

(a) (3 points) Identify all changes that must be made to the currently offered Cafeteria plan to ensure the preferred tax treatment of the benefit is applicable.

6. Continued

Additional information was provided by the HR department regarding anticipated election of benefits

Benefit	Estimated Value of Benefit	Highly Compensated Participants	Non-Highly Compensated Participants
Term life Insurance	\$500	180	2,000
Dependent Care Assistance	\$3,000	125	1,000
Paid Time Off	\$5,000	5	1,000
Adoption Assistance	\$13,000	25	10
HSA	\$1,500	85	1,000
Health Plan A	\$3,600	120	50
Health Plan B	\$1,200	50	2,500

	Highly Compensated	Non-Highly Compensated
Average Salary	\$250,000	\$56,500
Number of Employees	200	5,500

	Average Value of Benefits Elected	Number of Employees
Key Employees – Collectively Bargained	\$5,500	120
Key Employees – non-collectively Bargained	\$8,200	80
nonKey Employees – Collectively Bargained	\$2,000	4,000
nonKey Employees – non-collectively Bargained	\$3,100	1,500

(b) (5 points) Assuming all benefits above now qualify for tax preferred treatment:

(i) (2 points) Determine if the Cafeteria Plan would pass the Benefits Test. Show your work.

(ii) (1 point) Describe the following:

- The Contributions Test
- The key employee contributions test

(iii) (2 points) Determine whether or not the Cafeteria plan is discriminatory under the key employee concentration test. Show your work.

Questions 3 and 7 pertain to the Case Study

- 7.** (7 points) You are the Appointed Actuary at The Thunderball Corporation. The company's new CEO believes that Contract Reserves are not needed for Thunderball's LTD products because the company holds Unearned Premium Reserves.
- (a) (1 point) Describe the role of an Appointed Actuary.
 - (b) (1 point) Describe the purpose of both an Unearned Premium Reserve and a Contract Reserve.
 - (c) (1 point) Describe circumstances in which Thunderball would not need to hold a Contract Reserve.
 - (d) (1 point) Explain why having an Unearned Premium Reserve and a Contract Reserve may not always be sufficient to demonstrate reserve adequacy under Statutory Accounting Principles (SAP).

You are provided the following information for four disabled employees insured by Thunderball. All policies were issued on 1/1/2020.

Gender	Age	Elimination Period	Duration	Premium Mode	Gross Monthly Premium	Gross Monthly Benefit
Male	27	3 months	48	Monthly	\$5.0	\$1,000
Male	35	3 months	9	Annual	\$4.0	\$1,000
Female	35	6 months	60	Annual	\$3.5	\$5,000
Female	43	3 months	4	Paid Up Front for 5 Years	\$4.5	\$1,000

- (e) (3 points) Calculate the following for these 4 employees as of 1/31/2020:
 - (i) (2 points) Contract Reserve
 - (ii) (1 point) Unearned Premium Reserve

Show your work.

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8. (7 points) You are an actuary at Company ABC (ABC) looking to revisit the pricing assumptions for ABC's group medical plans. The tables below show the triangle of claim payments over 2019, and the unearned claim liability (UCL) estimates recorded by the insurer for this block at the end of each month.

		Payment Month											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Incurred Month	Jan	100	600	200	90	50	10	20	5	0	80	0	0
	Feb		80	400	150	75	60	20	10	10	0	0	0
	Mar			150	520	210	100	30	5	15	0	0	0
	Apr				120	420	190	85	35	10	10	5	0
	May					200	480	225	115	40	20	5	0
	Jun						160	390	280	70	20	15	5
	Jul							180	410	225	100	50	25
	Aug								210	425	245	115	60
	Sep									190	375	210	120
	Oct										250	485	200
	Nov											185	395
	Dec												205
		100	680	750	880	955	1000	950	1070	985	1100	1070	1010

		UCL Estimate at Month-end											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
UCL by Incurred Month	Jan	900	350	170	80	20	10	5	0	0	0	0	0
	Feb		700	350	175	100	50	20	10	0	0	0	0
	Mar			880	350	155	45	20	5	0	0	0	0
	Apr				760	350	150	60	30	15	5	0	0
	May					900	440	210	80	50	25	15	15
	Jun						850	450	155	90	35	20	20
	Jul							925	515	290	180	135	30
	Aug								910	495	230	120	60
	Sep									860	480	285	55
	Oct										950	450	130
	Nov											800	415
	Dec												845
		900	1050	1400	1365	1525	1545	1690	1705	1800	1905	1825	1570

- UCL estimate for claims incurred in prior years at the end of year 2018 was \$1,675.
- Paid claims for claims incurred in prior years was \$1,300, all of which were paid in the first quarter of 2019.

8. Continued

- (a) (4 points) Calculate the claims expense for each quarter in “accounting view” (financial statement view) and “actuarial view” (date of service view). Show your work.
- (b) (1 point) Evaluate the quarterly movements in claims expense for ABC under each “view”.
- (c) (1 point) Recommend the “view” that is most appropriate for your purpose. Justify your response.
- (d) (1 point) List instances where the “actuarial view” of financial performance is more relevant than the “accounting view”.

****END OF EXAMINATION****

USE THIS PAGE FOR YOUR SCRATCH WORK